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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/766,920

01/30/2004

Thomas Patrick Nolan

146712004000

3979

25227 7590 01/23/2007  
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EXAMINER

RICKMAN, HOLLY C

ART UNIT

PAPER NUMBER

1773

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/23/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/766,920

Applicant(s)

NOLAN, THOMAS PATRICK

Examiner

Holly Rickman

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20, 22 is/are pending in the application.
- 4a) Of the above claim(s) 11-20 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-10, 22 is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance: See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Specification***

1. The objection to the specification is withdrawn in view of Applicant's amendments.

### ***Claim Objections***

2. Claim 8 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 1 includes all of the limitations of claim 8.

### ***Claim Rejections - 35 USC § 102***

3. The rejection of claim 21 under 35 U.S.C. 102(e) as being clearly anticipated by Nakamura et al. (US 2005/0134988) has been rendered moot by the cancellation of the claim.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1773

5. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jeong et al. ("Controlling the crystallographic orientation in ultrathin L1- FePt (111) films on MgO(111) underlayer", IEEE Trans Magn, Vol. 37, No. 4, July 2001, pp 1268-1270) in view of Nakamura et al. (US 20050134988).

Jeong et al. disclose a magnetic recording medium having a substrate, an fcc (111) underlayer and a magnetic layer thereon having an fct L10 structure (ie, fcc derivative structure). The reference fails to disclose that the c-axis of the magnetic grains is at an angle, canted out of the plane of the magnetic layer.

Nakamura et al. teach that it is known in the art to deposit a magnetic recording layer formed from an L10 structure such that the c-axes of the magnetic grains are tilted out of the plane of the magnetic layer at an angle between 5 and 55 degrees. A specific example having an angle of 40 degrees is provided (see paragraph 48).

It would have been obvious to one of ordinary skill in the art at the time of invention to form the L10 magnetic layer taught by Jeong et al. to have a tilted c-axis structure in accordance with the teaching of Nakamura et al. in order to achieve a magnetic recording medium having improved resolution and S/N ratio as suggested by Nakamura et al.

#### ***Allowable Subject Matter***

6. Claims 9-10 and 22 are allowable over the closest prior art to Jeong et al. Jeong et al. fails to teach or suggest the use of an underlayer material having the claimed crystalline structure formed from alloys of Ru, Ag, Pt, or Pd (wherein the term alloy in the claim requires a mixture

Art Unit: 1773

of one of the claimed elements with another alloying component). Jeong et al. also fails to teach or suggest the use of an amorphous TiCr alloy underneath the underlayer.

With regard to claim 22, the reference fails to teach or suggest the claimed structure having an hcp underlayer with a <0002> orientation. Jeong et al. fails to teach or suggest a motivation to substitute an underlayer having this crystalline structure for the fcc <111> underlayer taught therein.

### *Response to Arguments*

7. Applicant's arguments filed 10/23/06 have been fully considered but they are not persuasive.

Applicant argues that claims 1-8 are now allowable over Jeong et al. because they include the limitations of allowable claim 9. The examiner notes that claim 1 now includes the limitations of claim 8, not claim 9. Thus, the claims are not allowable for the reasons of record.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 1773

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (571) 272-1514. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Holly Rickman  
Primary Examiner  
Art Unit 1773

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January 18, 2007